

# Zenmuse Z15

## User Manual

V1.0

**ZENMUSE™**

[www.dji-innovations.com](http://www.dji-innovations.com)

# Warning & Disclaimer

Z15 is specialized for Camera and Lens before it leaves the factory. Please mount your camera to Z15 when get it. No adjusting or amending is allowed to Z15. Neither shall the camera be added up with any other device (such as filter, lens hood, etc.), which would otherwise end up with low performance or even internal malfunction.

Z15 can only work with Autopilot system specified by DJI (Ace One/ Ace WayPoint/ WooKong M), so as to ensure the highest stability and precision.

Please download the corresponding assistant software and upgrade the autopilot system MC firmware, otherwise may lead the Z15 work abnormally.

Make sure the Autopilot system operates in the safest manner when the main power battery is connected. We strongly recommend customers to remove all propellers, use power supply from R/C system or flight pack battery, and keep children away during gimbal calibration and parameter setup. Please strictly follow these steps to mount and connect gimbal on your aircraft, as well as to install the assistant software on your computer. Please respect the AMA's National Model Aircraft Safety Code.

Dajiang Innovation Technology Co. Ltd. assumes no liability for damage(s) or injuries incurred directly or indirectly from the use of this product.

**Note1:** V1.0 can only work with WooKong M , with upgraded firmware to V5.08 or above.

**Note2:** Specified Camera and Lens Type list for Z15-N and Z15-G.

(Items in *gray italics* font are not yet supported at present.)

<div><div>Z15 Type</div><div>Camera Type</div><div>Lens Type</div></div>	Z15-N		Z15-G
	SONY		<i>Panasonic(Not yet supported)</i>
	NEX-5N	NEX-7	<i>GH2</i>
Supported	E 16mm f/2.8(SEL16F28)		
Not yet supported	<i>Sonnar T*E 24mm F1.8 ZA</i>		<i>Lumix G 1:2.5 / 14 ASPH</i>

**Note3:** All diagrams in the manual are for SONY NEX-5N with SEL16F28 unless stated, since different camera or lens should use special component.

# Product Profile

DJI Z15 is an excellent gimbal designed for AP. The gimbal has built-in slip ring in the mechanical structure, preventing wire rod from winding up. It also has built-in independent IMU module, special servos drive module, HDMI- AV module, etc. Excellent job can be done by Z15 in any working mode, including Orientation-locked control, Non orientation-locked control and FPV Mode (Reset).

Z15 Working Mode			
	Orientation-locked Mode	Non orientation-locked Mode	FPV Mode (Reset)
Gimbal Pointing	Gimbal pointing moves with aircraft nose direction	Gimbal pointing stays unchanged when aircraft nose moves.	Gimbal pointing stays the same as aircraft nose direction when power up
Gimbal and Aircraft Nose Relative Angle	Gimbal pointing keeps the same relative angle with aircraft nose direction	Relative angle between gimbal pointing and aircraft nose direction may change	Zero relative angle between gimbal pointing and aircraft nose
TX Control	Controlled	Controlled	Not controlled
Attitude stability	YES	YES	YES
Vibration Reduction	YES	YES	YES
Stick Meaning	Command stick stands for gimbal rotation velocity , Stick center position is for 0 , its endpoint is maximum velocity.		—
Command Linearity	YES	YES	—

**Note1:** Gimbal pointing means gimbal PAN rotation direction.

**Note2:** Attitude stability means that gimbal's ROLL/TILT will not follows the aircraft's ROLL/PITCH.

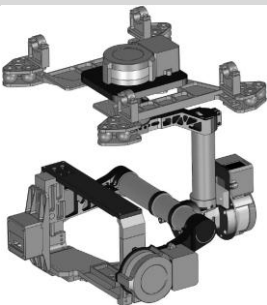
**Note3:** Gimbal rotating maximum velocity is corresponding to TX 100%end-point.

# In Box

## Gimbal ×1

In the mechanical structure, the gimbal has built-in slip rings, preventing wire rod from winding up, which also enables free rotations for the 3 axes rotating rods.

The gimbal has built-in DJI gimbal special servos drive module, independent IMU module and HDMI - AV module.



## Gimbal Controller Unit (GCU)×1

Connect the gimbal controller to the autopilot system by CAN bus.

The GCU will control the gimbal's pan, roll and tilt axes rotation.



## Lens Retaining Ring×1, L-Connector ×1

For fixing the camera lens.

(With jackscrew ×2)



## Lens Retaining Ring Shim×1

For fastening the camera lens.



## Mounting Bracket ×4

For gimbal and bi-pod connection.



## Camera Mount Screw×1

For camera mount.



## Lens Retaining Ring Screw×1

For fixing the lens retaining ring to the gimbal.



## Screw×10

For mounting gimbal to aircraft (2.5\*8 Head-cup screw×8).

For fixing the lens retaining ring (M2.5\*5 Screw×2).



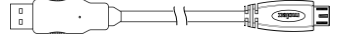
## Gimbal Video Power Cable×1

For gimbal controller and Wireless Video Transition Unit connecting, transmitting AV signal.



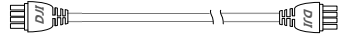
## Micro-USB Cable×1

For adjusting parameter and upgrading firmware via PC.



## CAN-Bus Cable×1

Use CAN-Bus to power and communicate with the autopilot system.



## Spare Package×1

Damping units, Spare Screw, and Mounting Bracket.

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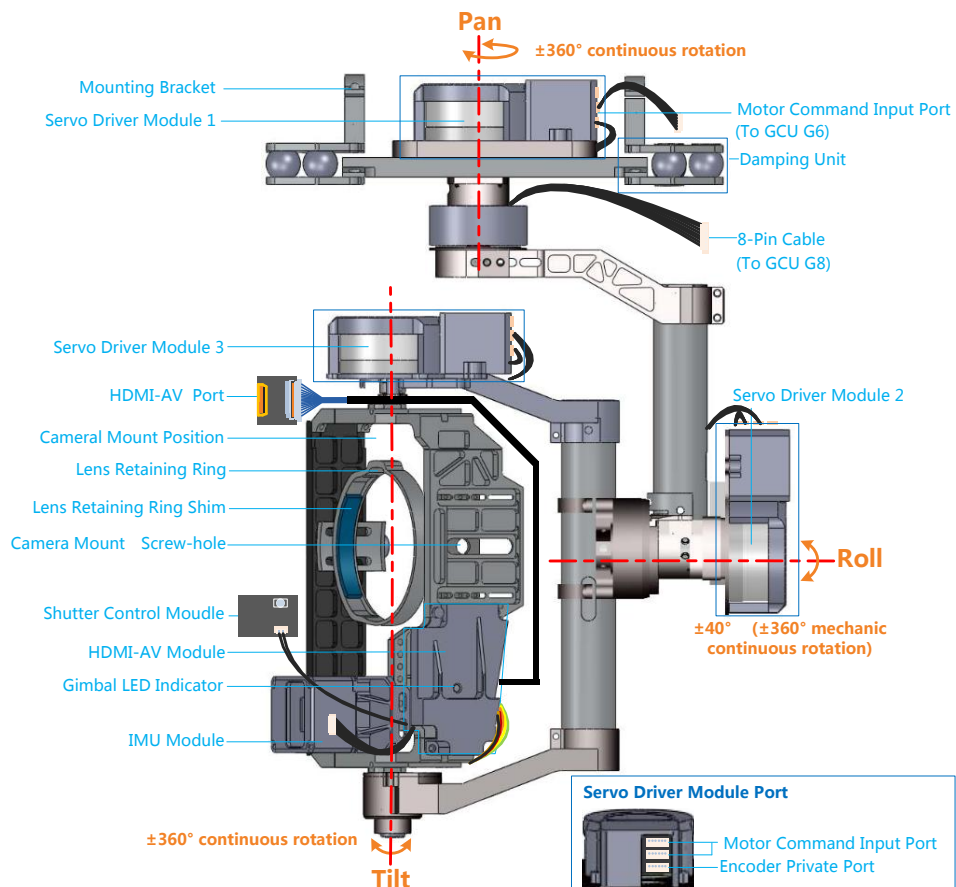
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# Matters Need Attention

**For safety reasons, please pay serious attention to all following items:**

- Ensure nothing blocks the servo driver module rotation, to avoid motor damage.
- Camera's HDMI resolution should be set to 1080i.
- Ensure to mount the side of servo driver module1 without ports to the aircraft nose direction.
- The gimbal center of gravity has been set, whose position directly determine gimbal performance. Please do not adjust the gimbal center of gravity by yourself.
- The gimbal is a high-precision control device. Do not remove any other screws in the gimbal, which may result in bad performance or even damage.
- Do not unplug any cable attaching to the gimbal ports, or even change the mechanical structure.
- Make sure all wiring is correct, otherwise may lead to gimbal abnormal work or even out of control.
- Make sure to connect Video Transition Unit to gimbal controller before power on the system.
- The standard gimbal video power cable is recommended.
- Make sure you solder the gimbal video power cable to the wireless video transition unit correctly, to avoid the 12V power burn the gimbal or your own device. And ensure the cables are insulated, to prevent from short circuit.
- Ensure the 12V power is safe for you own device when other power cable is used.
- Make sure the wireless video transition module current consumption does not exceed 1A, to prevent GCU from damage.
- Pay attention to that S800 power supply voltage is within the defined limits (6S), when using one battery for both S800 and Gimbal power supply.
- Different camera or lens should use special component.

# Gimbal Description



## Notices:

- Ensure nothing blocks the servo driver module rotation, to avoid motor damage.
- Clear obstacle at once if the rotating gimbal is blocked.

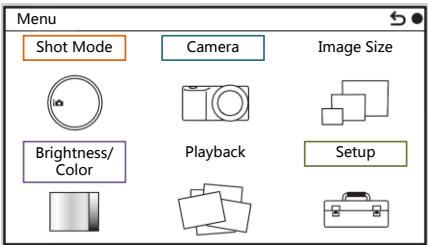
## Tips:

- Servo driver module is with two motor command input ports and one encoder private port.
- HDMI-AV module converts HDMI video signal to AV video signal with a cable connecting to camera HDMI port; also transforms TX signal into shutter control signal with a shutter control module.
- Shutter control module is for camera shutter control using an infrared signal emission head.

# Camera Setup

Configure your camera by following the settings, meeting the requirements of Z15.

## Sony NEX-5N /7



**Shot Mode**  
*Manual Exposure*

Shutter: 1/60  
Aperture: F3.5

**Camera**

Drive Mode *Remote Cdr.*  
AF/MF Select MF

**Brightness/Color**

ISO Not use Auto  
White Balance Not use Auto

**Setup**

Lens Comp: Shading Off  
Lens Comp: Chro.Aber Off  
Lens Comp: Distortion Off  
HDMI Resolution *1080i*

- Please set Shot Mode as Manual Exposure ***M***.
- ***Shutter***: Value 1/15~1/80 is recommended, do not set it bellow 1/80(like 1/120).
- ***Aperture***: According to exposure degree.
- **Drive Mode**: Set as ***Remote Cdr.***, so that camera shutter can be controlled by TX.
- **AF/MF Select**: Select MF, otherwise output image would be flashing.
- **ISO**: Please fix a certain value instead of automatically.
- **White Balance**: Please do not set it to auto white balance mode.
- **Lens Comp**: Set Shading/Chro.Aber/Distortion Off.
- **HDMI Resolution**: Should be set to ***1080i***.

**Tips:**

In the Menu settings, the mandatory values are in red italic font while recommended values in blue.

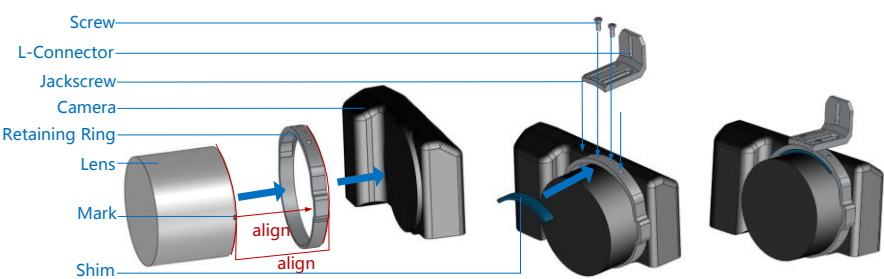
**Notices :**

Flashing image output may occur if not follow the recommended settings.

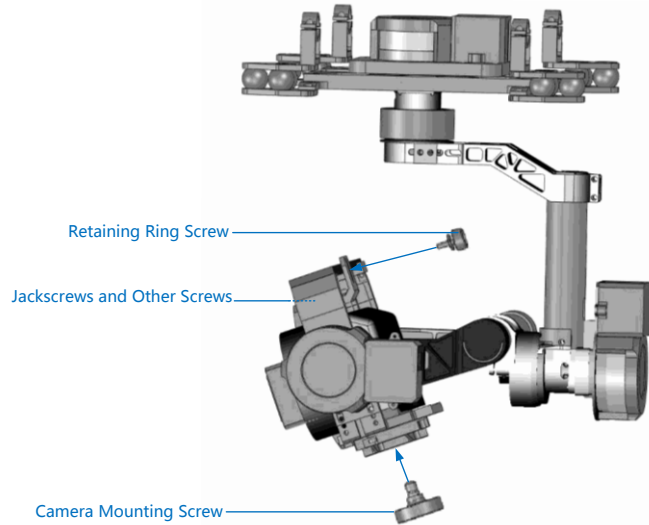
# Mount

## Mount Lens

Follow the procedures to obtain better experience.

Step1	Step2	Step3
 <p><b>Step1:</b> Put retaining ring through lens before mounting onto camera, accurate the alignment by matching the mark.</p> <p><b>Step2:</b> Slip the shim between lens and retaining ring, fix in (but not tighten) screws (M2.5*5 Screw×2).</p> <p><b>Step3:</b> The L-Connector is active.</p>		

## Mount Camera into Gimbal



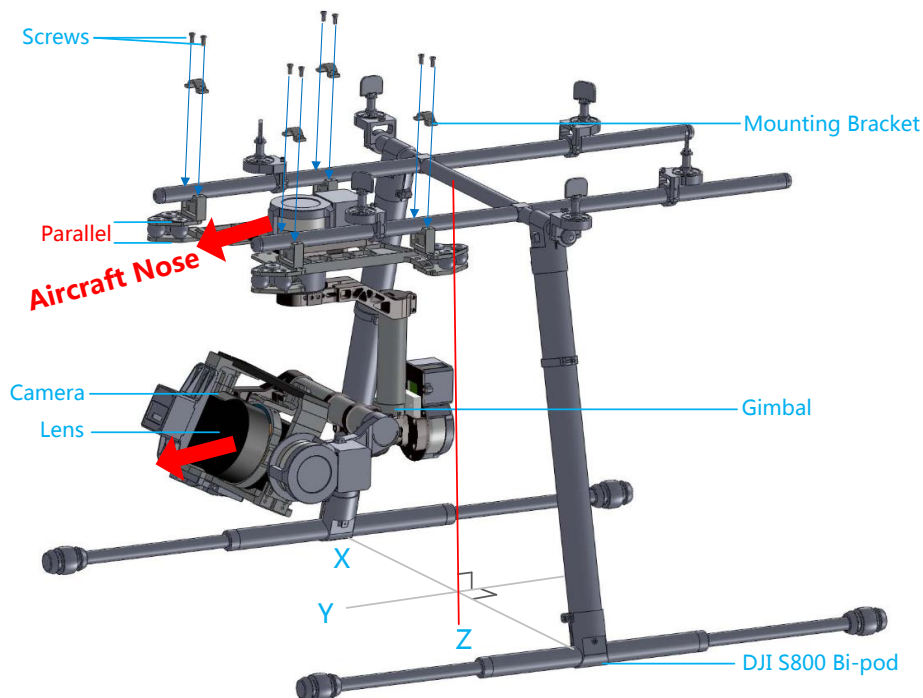
**Step4:** Mount the camera into the gimbal and tighten the camera mounting screw.

**Step5:** Adjust the L-Connector, and fix the retaining ring screw.

**Step6:** Tighten the jackscrews and other screws.

## Mount Gimbal to Bi-pod

Following diagram shows mounting gimbal to DJI S800 bi-pod. You may mount the gimbal to a bi-pod prepared by you referring to the following diagram.



**Step7:** Install gimbal to a bi-pod with mounting bracket; tighten up screws (2.5\*8 Head-cup screwx8) with appropriate screw glue.

### Notices:

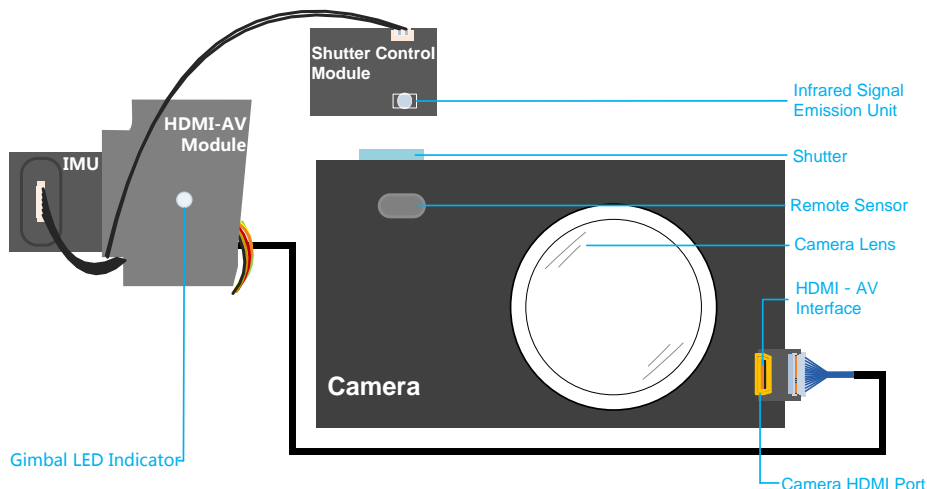
- Ensure to mount the side of servo driver module1 without ports to the aircraft nose direction.
- Make sure the top and bottom plates of damping unit stay parallel when mounting, preventing the damping units from stretched and distorted.
- Keep overall balance when mounting, in order to make the center of gravity on the red line (Z axis).
- The gimbal center of gravity has been set, whose position directly determine gimbal performance. Please do not adjust the gimbal center of gravity by yourself.
- The gimbal is high-precision controlled. Do not remove any other screws in the gimbal, which may result in bad performance or even damage.
- Do not unplug any cable attaching to the gimbal ports, or even change the mechanical structure.
- Make sure the wiring is correct, otherwise may lead to gimbal abnormal work or even out of control.

# Camera Wiring/Shutter Control

## Camera Wiring

Connect the camera correctly, since the gimbal works with a HDMI-AV module for converting video signal format and transforming TX signal into shutter control signal.

Ensure camera is setup first, and then follow the procedures to connect camera and gimbal.



**Step1:** Connect the gimbal HDMI-AV module to camera HDMI port with a HDMI-AV connection cable.

**Step2:** Make sure the infrared signal emission unit is aligned to the remote sensor.

### Notices:

- When disconnect the cable between HDMI-AV module and camera, dismount the camera, and unplug the HDMI-AV interface.
- Make sure the infrared signal emission unit is aligned to the remote sensor.

## Shutter Control

Z15 enables transforming TX command into shutter control signal, please set one 2-position switch/channel for remote shutter control.

Set the **Drive Mode** as **Remote Cdr.** in **Camera** Menu, and make sure the shutter control module is correctly mounted and wired.

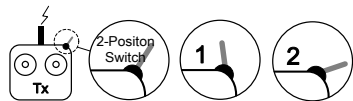
Whichever 2-position switch on your transmitter selected, wire the right channel of receiver to **SHUT** port.

One switch toggle is for one shooting.

For example, toggle twice will achieve two shootings.

Position-1→ Position -2 : First shooting

Position -2→Position -1 : Second shooting

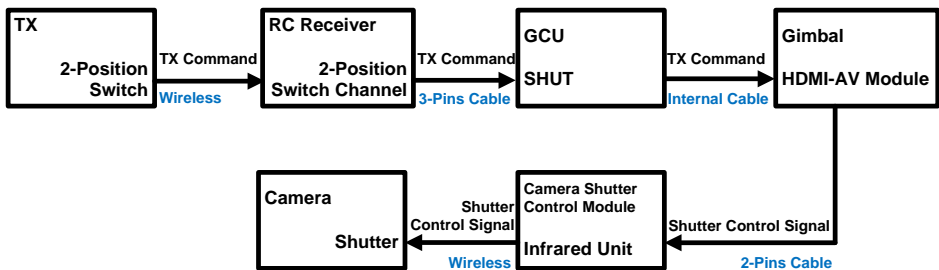


**Notices:**

- Current version can only enable capturing photo, but not for video.

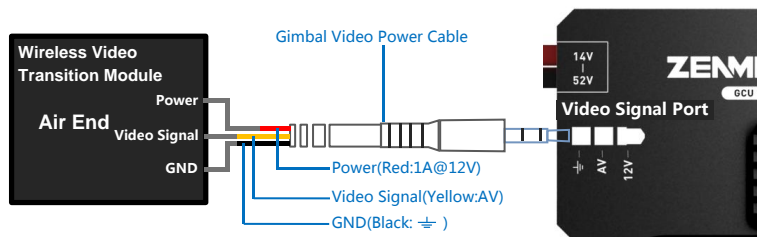
**Tips:**

- Following diagram shows how the shutter control works.
- If the shutter control works abnormally, please check each step.



# Video Signal Transition

A wireless video transition module is necessary for video signal accessing remotely.



**Step1:** Respectively solder the Power/Video Signal/GND cables to wireless video signal transition module (Air End).

**Step2:** Plug the gimbal video power cable head into the GCU Video Signal Port.

## Notices:

- Make sure to connect Video Transition Unit to GCU first, then power on.
- Set HDMI Resolution as 1080i; otherwise the wireless video transition module will work abnormally.
- The standard gimbal video power cable is recommended.
- Make sure you solder the gimbal video power cable to the wireless video transition unit correctly, to avoid the 12V power burn the gimbal or your own device. And ensure the cables are insulated, to prevent from short circuit.

— Power Cable(1A @12V)

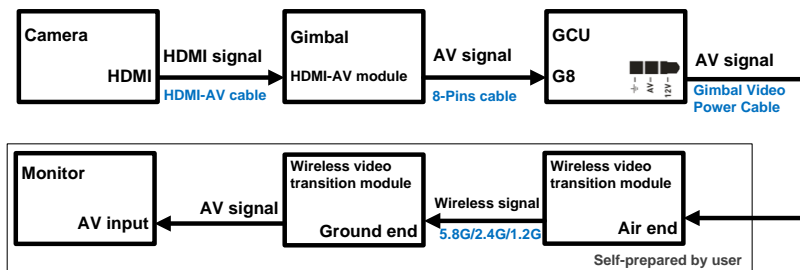
— Video Signal Cable(AV)

— GND Cable

- Ensure the 12V power is safe for you own device when using other power cable.
- Make sure the wireless video transition module current consumption does not exceed 1A, to prevent GCU from damage.

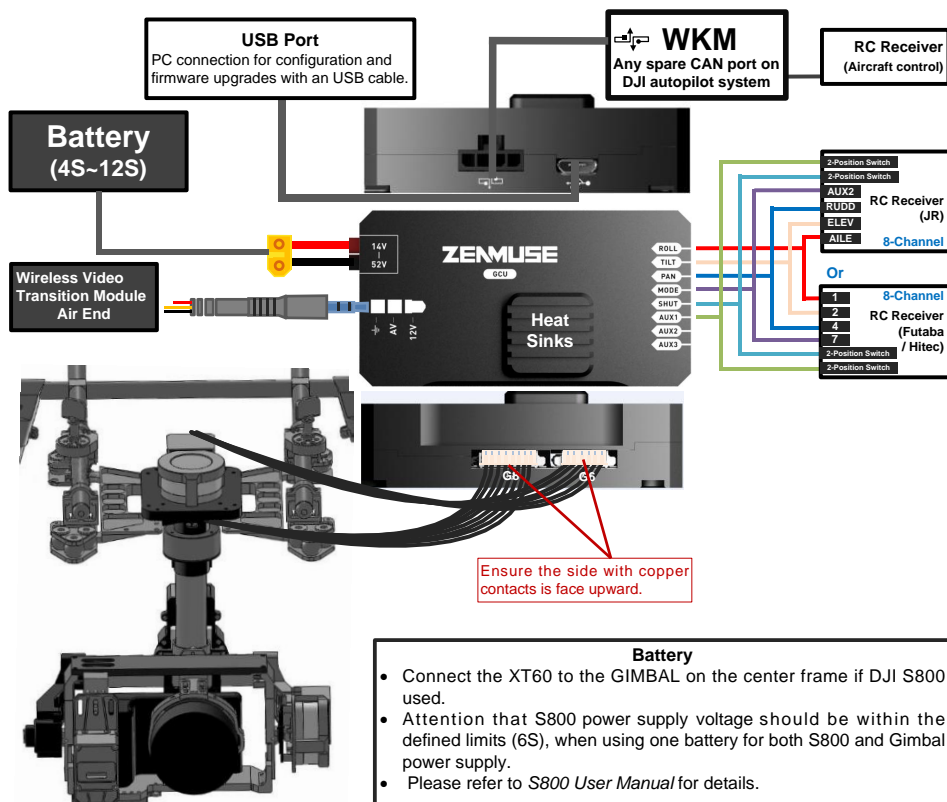
## Tips:

- Following diagram shows how video signal transit when gimbal working.
- If video signal access fails, please check each step.



# Gimbal Controller Wiring

## GCU Wiring



### WKM

Please refer to WKM User Manual for all connection and configuration details.

### Gimbal Controller (GCU)

- Make sure ports are accessible when installing MC so as to facilitate wiring and software configuration.
- In 3-pin ports, pins near the nicks are signal pins.
- 6-pin cable for G6, 8-pin cable for G8.
- DO NOT cover the heat sinks, keep them unobstructed.
- The IMU module is NOT water-proof or oil-proof.



### RC Receiver

- These are example connections. Prepare 2 TXs, one is for gimbal control, the other one for aircraft control, refer to **2-Pilots Solution** for more detail in **Appendix**.
- If one receiver is used for aircraft and gimbal control at the same time, refer to **1-Pilot Solution** for detail in **Appendix**.
- Setup Aileron, Elevator, Rudder channels on gimbal control TX. Command stick stands for gimbal rotation velocity, center position is for 0, endpoint for maximum velocity(both clockwise and counter clockwise directions). (End Point is 100%)
- Choose one 3-position switch/channel as Z15 working modes switch.(MODE)
- Choose one 2- position switch/channel as camera shutter control switch(SHUT), also one for HDMI switch(AUX1).
- Please refer to WKM User Manual for aircraft control setting.
- Connect the receiver to GCU correctly.

## GCU Ports Indication

Following table shows GCU channels and TX channels connection.

TX channels		GCU Channels	Indications
JR	Futaba/Hitec		
AILE	1	ROLL	For roll axis control (left/right). Velocity is zero if disconnection.
ELEV	2	TILT	For tilt axis control. Velocity is zero if disconnection.
RUDD	4	PAN	For pan axis control. Velocity is zero if disconnection.
AUX2	7	MODE	For Working Mode switch.
2-position switch channel		SHUT	For camera shutter control. Off when non-connection and disconnection.
2-position switch channel		AUX1	For HDMI-AV conversion switch. Conversion function is on while non-connection or disconnection.

# Working Modes/HDMI Switch Setup

## Gimbal Working Mode Switch Set

Whichever 3-position switch selected as working mode switch, wire the right channel of receiver to **MODE** port. At each switch position, use end-point fine tuning, set the channel AUX2(JR) /7(Futaba/Hitec) for the three Working modes.

**Orientation-locked Mode**      **MODE** channel end-point 60%~90%

**FPV Mode (Reset)**                      back to center

**Non orientation-locked Mode**      **MODE** channel end-point 60%~90%

### Notices:

- The gimbal will work in **Orientation-locked Mode**, if not connect to **MODE**.
- Gimbal default works in **FPV Mode** after power on.
- The gimbal will maintain the Working Mode from last moment, if the cable between **MODE** and RC receiver is disconnecting while working.

### Tips:

- For 3-position switch, you may assign:

Position-1 to **Non orientation-locked**

Position-2 to **FPV Mode (Reset)**

Position-3 to **Orientation-locked**

Position-1 and Position-3 can be reverse assigned.

- One 2-position switch can be assigned for any two of the working modes as you like.

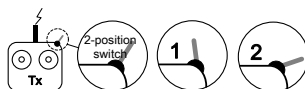


## HDMI Switch Set

HDMI-AV module can be set on/off by TX. Please ensure camera HDMI port is connected to gimbal correctly.

Whichever 2-position switch selected as HDMI switch, wire the right channel of receiver to **AUX1** port.

You may assign: Position-1 to **ON**; Position-2 to **OFF**; or reverse the assignment.



### Notices:

The camera HDIM will be on if **AUX1** and RC receiver is disconnected.

# Assistant

## Install Driver and Software

- STEP1:** Make sure driver is installed correctly, which has been installed before your use WKM , ACE ONE or ACE WAYPOINT.
- STEP2:** Please download assistant software `ZenmuseInstaller.exe` from DJI website.
- STEP3:** Double click `ZenmuseInstaller.exe` file and follow the steps to finish installation.
- STEP4:** Run `DJI Zenmuse Assistant`.



## GUI

Connect GCU and PC via USB cable, power on GCU.



- DJI**
  - Tools:** Upgrade. For upgrading the gimbal firmware
  - Language:** 中文 or English
  - Help:** About. For version and SN access
- Gimbal**
  - Basic:** For Roll/Tilt/Pan/Mode observation
  - Function:** For Shutter/HDMI observation
- Connection indicator**
  - Blue LED On: Disconnected with PC
  - Green LED On: Connected with PC
- Communication indicator**
  - Blue LED On: Without communication
  - Green LED Blink: Communicating with PC
- Text Description**
  - Mouse over each item will display the corresponding content

## Firmware Upgrade

Please strictly follow the operation procedures for firmware upgrade, otherwise Z15 might not work properly:

**Step1:** Make sure your computer is connected to the Internet.

**Step2:** Please close all the other applications during firmware upgrade, including anti-virus software and firewall.

**Step3:** Make sure the power supply is securely connected. DO NOT un-plug the power supply until firmware upgrade has finished.

**Step4:** Connect GCU to PC with a Micro-USB cable, DO NOT break connection until firmware upgrade has finished.

**Step5:** Run Software and wait for connection.

**Step6:** Select **DJI** → **Tools** → **Upgrade**.

**Step7:** DJI server will check current firmware version, and get the latest firmware prepared for the unit.

**Step8:** If there is a firmware version more up-to-date than your current version, you will be able to click the **Upgrade** button.

**Step9:** Wait until Assistant software finishes reading gimbal and GCU.

**Step10:** Click **OK** and power cycle the unit after at least 5 seconds.

### Notices:

- After firmware upgrade, please re-recognize setup using Assistant software.
- If abnormally read or write, close software and power off, and then restart software and power up.
- If it is notified that the network or DJI server is busy, please try again later with above procedures.
- If firmware upgrade failed, please try again with the above procedures.

## Product Information

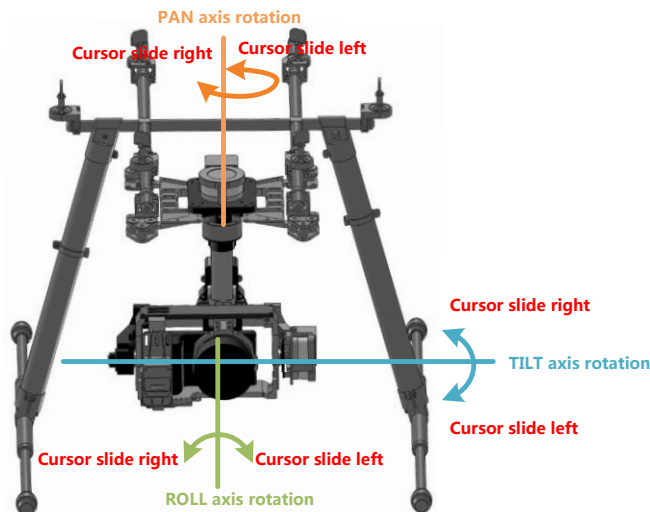
You can check the product version via **Help** → **About**. This includes **Hardware ID** , **IMU** , **GCU** , **Software**. **SN** is a 32 digits authorization code for unit function activations. We had already filled in the authorization code for your unit after manufacture. You might be asking to fill in the new SN in the future if you brought new function upgrades. Fill in the SN and then click **Write** button. If you filled in an invalid SN over 30 times, your product will be locked and you have to contact our customer support.

## Basic

Make sure your setups according to **Basic**.


**ROLL/PAN/TILT**: Push the joystick on TX to obtain the stick direction and the gimbal rotation direction.

The following diagram shows the gimbal rotation direction and the cursor slide direction on assistant.



**MODE**: Toggle the 3-position switch, the corresponding slider of cursor will turn red .

## Function

**SHUT/AUX1**: Toggle the 2-position switch, the corresponding slider of cursor will turn red .

# Test

## Check Before Flight

### Notices:

- Gimbal is installed firmly to bi-pod, and camera mounted correctly and stably.
- All cables are in correct connection, without anyone in backwards.
- Gimbal video power cable is in good soldered condition if wireless video transition module used.
- Correct TX settings.
- Camera shutter control module is correctly mounted.
- Correct camera setups.
- Correct connection between GCU and RC receiver.
- Normal connection between GCU and autopilot system.
- Upgrade Autopilot System MC Firmware.

### Tips:

- Gimbal LED flashing red quickly when camera and gimbal connection fails.
- Gimbal LED stays solid green when camera and gimbal is successful connection.
- Please turn to ***Trouble Shooting*** in ***Appendix*** if abnormal situation occurs.

## Test

- Step1:** Ensure batteries are fully charged for transmitter, GCU and all the other devices on your aircraft.
- Step2:** Make sure all connections and wirings are in good condition.
- Step3:** Switch on the TX.
- Step4:** Power on gimbal and wait for self-testing, whose three axes will rotate quickly at the same time.
- Step5:** After self-testing, camera lens will point to aircraft nose direction, that is, the three axes of gimbal should be in the condition as the following diagram shows.
- Step6:** Gimbal goes into initialization, at this time the three axes will rotate very slowly.
- Step7:** Gimbal is at a standstill after initialization, and ready for usage.
- Step8:** Toggle the Working Modes switch on your transmitter, and make sure it is working properly.
- Step9:** Switch the Working Modes to **Non orientation-locked**, **FPV Mode (Reset)**, **Orientation-locked** respectively, and then try to push your sticks lightly in Roll, Tilt and Pan to feel if your gimbal moves to the corresponding direction. If not, go back to ***Gimbal Working mode Switch Set*** to correct your settings.

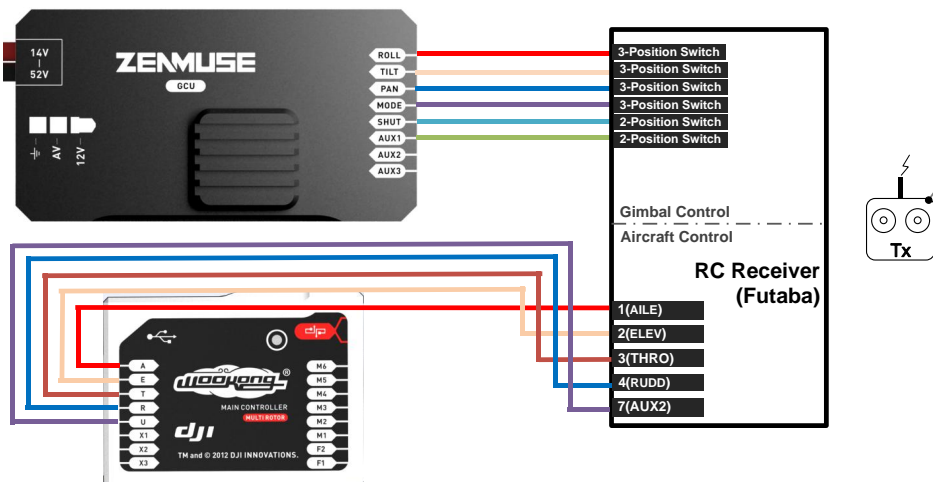


### Notices:

If the gimbal is abnormal (unlike the diagram shows) after initializing, please turn to ***Trouble Shooting*** in ***Appendix***.

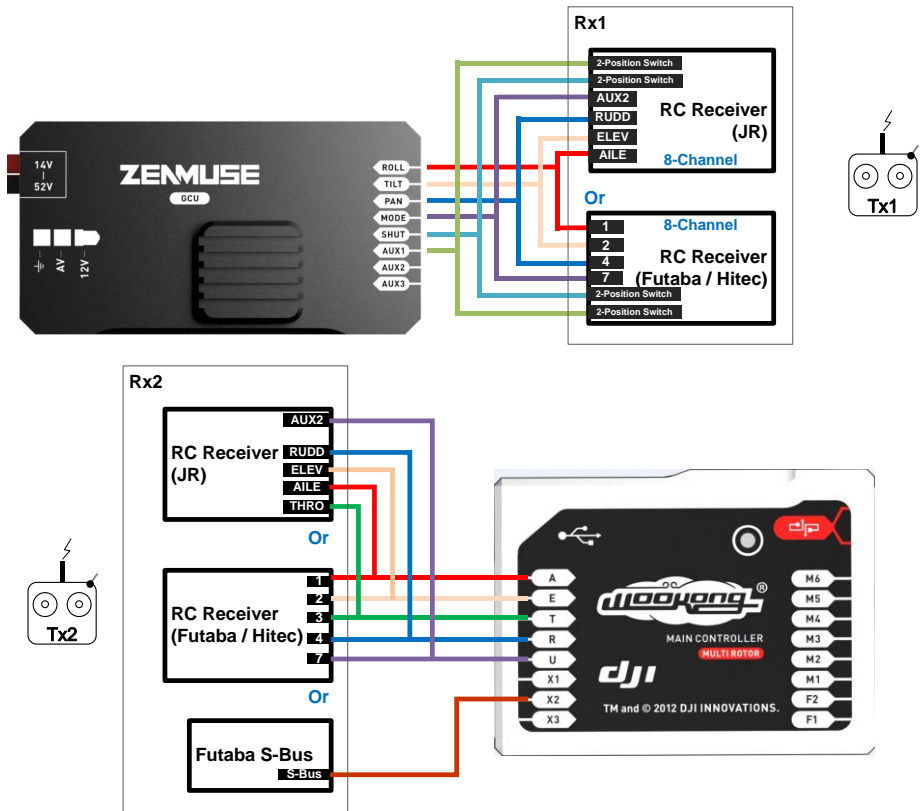
# Appendix

## 1-Pilot Solution



- This is example connection. Prepare one 14-channel TX/RC receiver for aircraft and gimbal control.
- Setup Aileron, Elevator, Throttle ,Rudder channels on TX for aircraft roll, elevator, throttle, rudder control, and TX AUX2 for aircraft control modes(Please refer to *Autopilot System User Manual*).
- Choose three 3-position switches for ROLL, TILT, and PAN rotation control. Switch center position is 0 velocity and end positions are maximum velocity.
- Choose one 3-position switch/channel as Z15 Working Modes switch (MODE).
- Choose one 2-position switch/channel as camera shutter control switch (SHUT), and one as HDMI switch (AUX1).
- Connect the receiver to GCU and Autopilot System MC correctly.

## 2-Pilot Solution






Prepare 2 TXs and 2 RXs.

TX1 and RX1 are for gimbals control.



TX2 and RX2 are for aircraft control.

Please refer to *Gimbal Controller Wiring* for more details.

# Port Description

Gimbal Controller	
ROLL	For roll axis control
TITL	For tilt axis control
PAN	For pan axis control
MODE	For Working Mode switch
SHUT	For camera shutter control
AUX1	For HDMI switch
	To wireless video transition unit, transmitting AV signal
XT60	To battery (To GIMBAL if DJI S800 used)
G6	To Gimbal, transmitting motor command
G8	To Gimbal, transmitting video signal
	Micro-B USB port: PC connection for configuration and firmware upgrades
	CAN-Bus port: Use CAN-Bus to connect GCU to the autopilot system
Gimbal	
HDMI-AV Port	To Camera HDMI port
Motor Command Input Port	To GCU G6
8-Pin Cable Port	To GCU G8

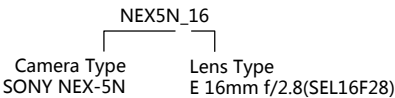
# Gimbal LED Indicator

Description	LED Indicator
Camera and gimbal connected	
Camera and gimbal disconnected	

# Gimbal Label Description

Camera Type \_ Lens Type

For example



# Trouble Shooting

NO.	Station	Why	How to
1	Gimbal keeps drifting after initialization	(1) TX trims are too much (2)GCU and autopilot system is disconnected (3)Z15 mounting direction is disaccording to aircraft nose	(1) Adjust the TX trims (2)Connect GCU and autopilot system (3)Ensure Z15 mounting direction is the same with aircraft nose
2	The gimbal is abnormal after initializing	Abnormal calibration after manufacture	Please contact local dealer or DJI customer service
3	Can't distinguish gimbal pointing when using	BVR flight	Switch to FPV Mode first, then to another Working Mode needed
4	Gimbal LED flashing red	(1) The gimbal and camera disconnected (2)Camera is off (3) Camera setup failure	(1)Make sure cable connected (2)Please power on camera (3)Set HDMI resolution as 1080i
5	Gimbal green LED is on but without video display	(1) Wireless video transition unit disconnected (2)Wrong power supply for wireless video transition unit	(1) Check the wireless video transition unit connection (2) Ensure the power supply for wireless video transition unit is 12V

# Specifications

General	
Built-In Functions	<ul style="list-style-type: none"><li>● Three Working Modes<ul style="list-style-type: none"><li>✧ Orientation-locked control</li><li>✧ Non orientation-locked control</li><li>✧ FPV mode (Reset)</li></ul></li><li>● Built-in independent IMU module</li><li>● DJI gimbal special servos drive module</li><li>● HDMI- AV module</li><li>● Wireless video transition support</li><li>● Camera shutter control support</li><li>● Wide range voltage input support</li></ul>
Peripheral	
Supported Camera	<ul style="list-style-type: none"><li>● SONY NEX-5N</li><li>● SONY NEX-7</li></ul>
Supported Lens Currently	SONY : E 16mm f/2.8(SEL16F28)
GCU Input Power	4S~12S LiPo (Recommend 6S if with S800)
Control Requirement	Four spare receiver channels at least
Assistant Software System Requirement	Windows XP SP3; Windows 7
Mechanical& Electrical Characteristics	
Working Current	<ul style="list-style-type: none"><li>● Static current: 200mA (@25V)</li><li>● Dynamic current: 400mA (@25V)</li><li>● Locked-rotor current: 4A (@25V)</li></ul>
Operating Temperature	-10°C ~ 50°C
Weight	1.25Kg
Dimensions	200mm x200mm x230mm
Frame Dimensions For Camera (Inside)	115mm x75mm
GCU BEC Output	10A@12V
GCU Wireless Video Transition Power	1A @12V
GCU Weight	300g
GCU Dimensions	64.2 mm x34.1mm x19.5mm
Working Performance	
Load Weight (Reference Value)	336g(@Sony NEX-5N with Lens and Battery)
Controlled Angle Accuracy	±0.05°

**Maximum Controlled Rotation Speed**

Pan axis:  $\pm 130^{\circ}/s$   
Tilt axis:  $\pm 130^{\circ}/s$   
Roll axis:  $\pm 30^{\circ}/s$

**Controlled Rotation Range**

Pan axis control:  $\pm 360^{\circ}$  continuous rotation  
Tilt axis control:  $\pm 360^{\circ}$  continuous rotation  
Roll axis control:  $\pm 40^{\circ}$  ( $\pm 360^{\circ}$  mechanic continuous rotation)

**Regulatory Approvals**

FCC (USA)

Yes

IC (Canada)

Yes

ROHS(EU)

Yes



## Zenmuse Z15

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